T00T0T* T295660

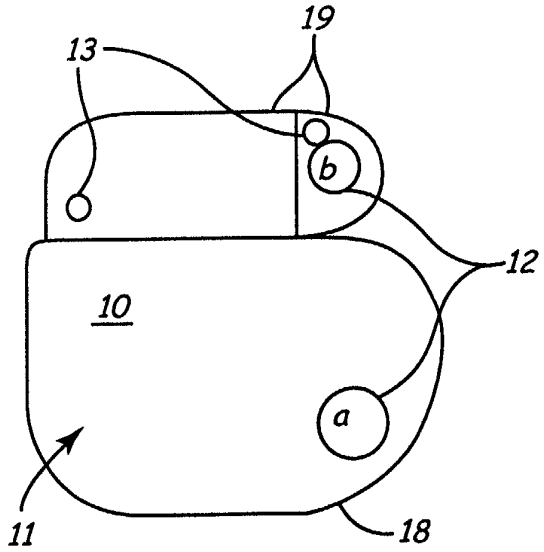

FIG. 1
PRIOR ART

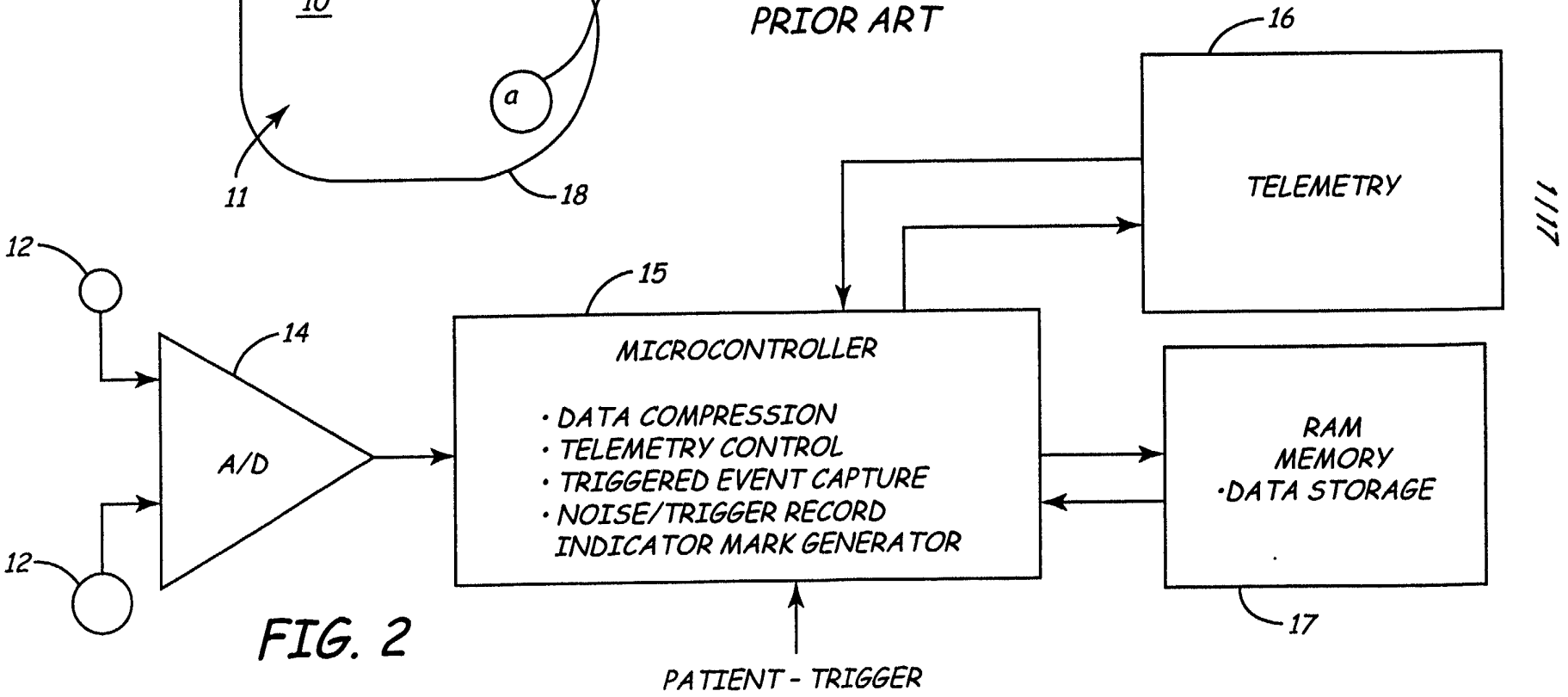

FIG. 2

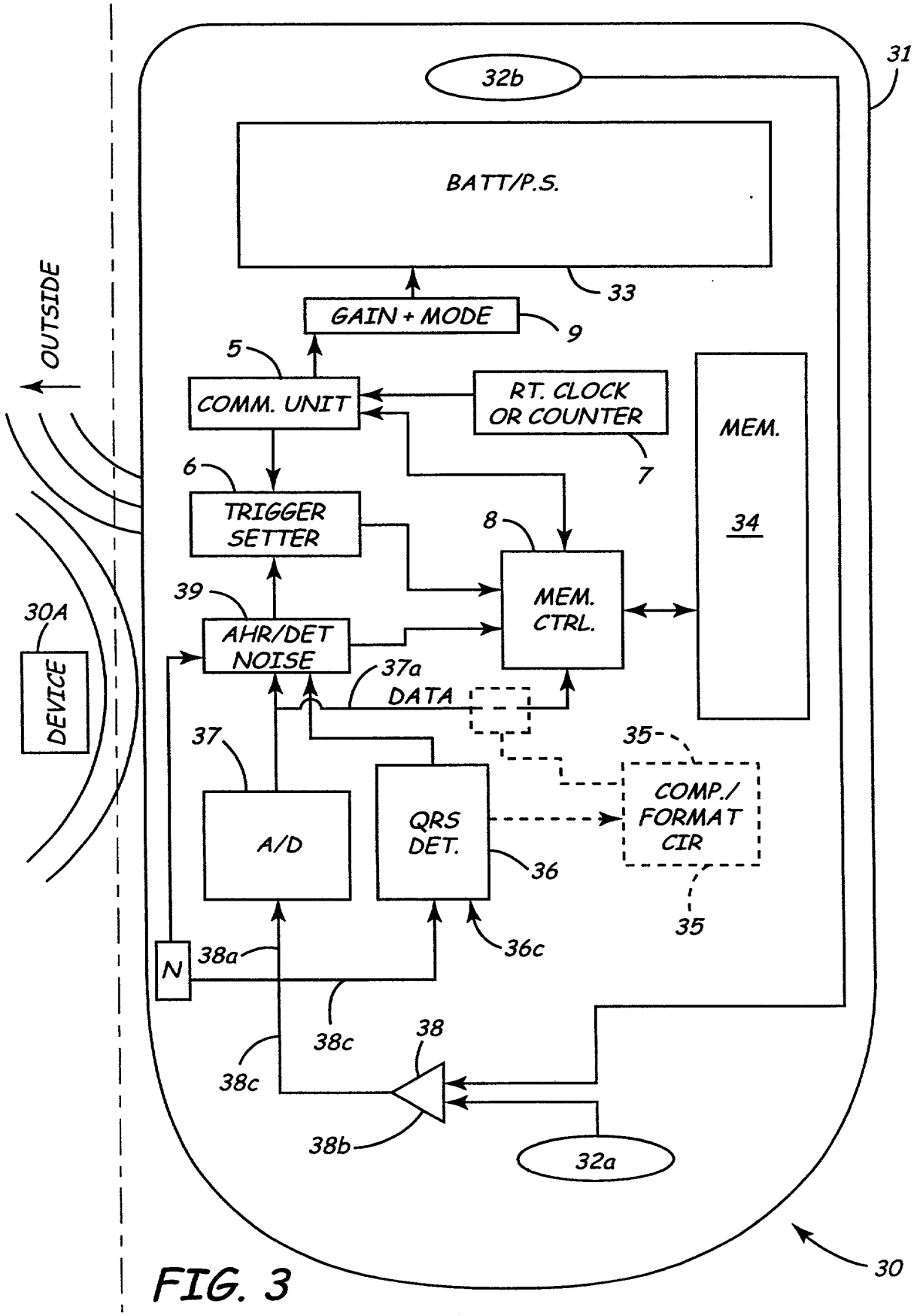
31
32b
BATT/P.S.
33
GAIN + MODE
9
5
COMM. UNIT
RT. CLOCK
OR COUNTER
7
MEM.
34
6
TRIGGER
SETTER
8
MEM.
CTRL.
39
AHR/DET
NOISE
37a
DATA
30A
DEVICE
OUTSIDE
37
35
COMP./
FORMAT
CIR
A/D
QRS
DET.
36
35
N
38a
36c
38c
38c
38
38b
32a
30

FIG. 3

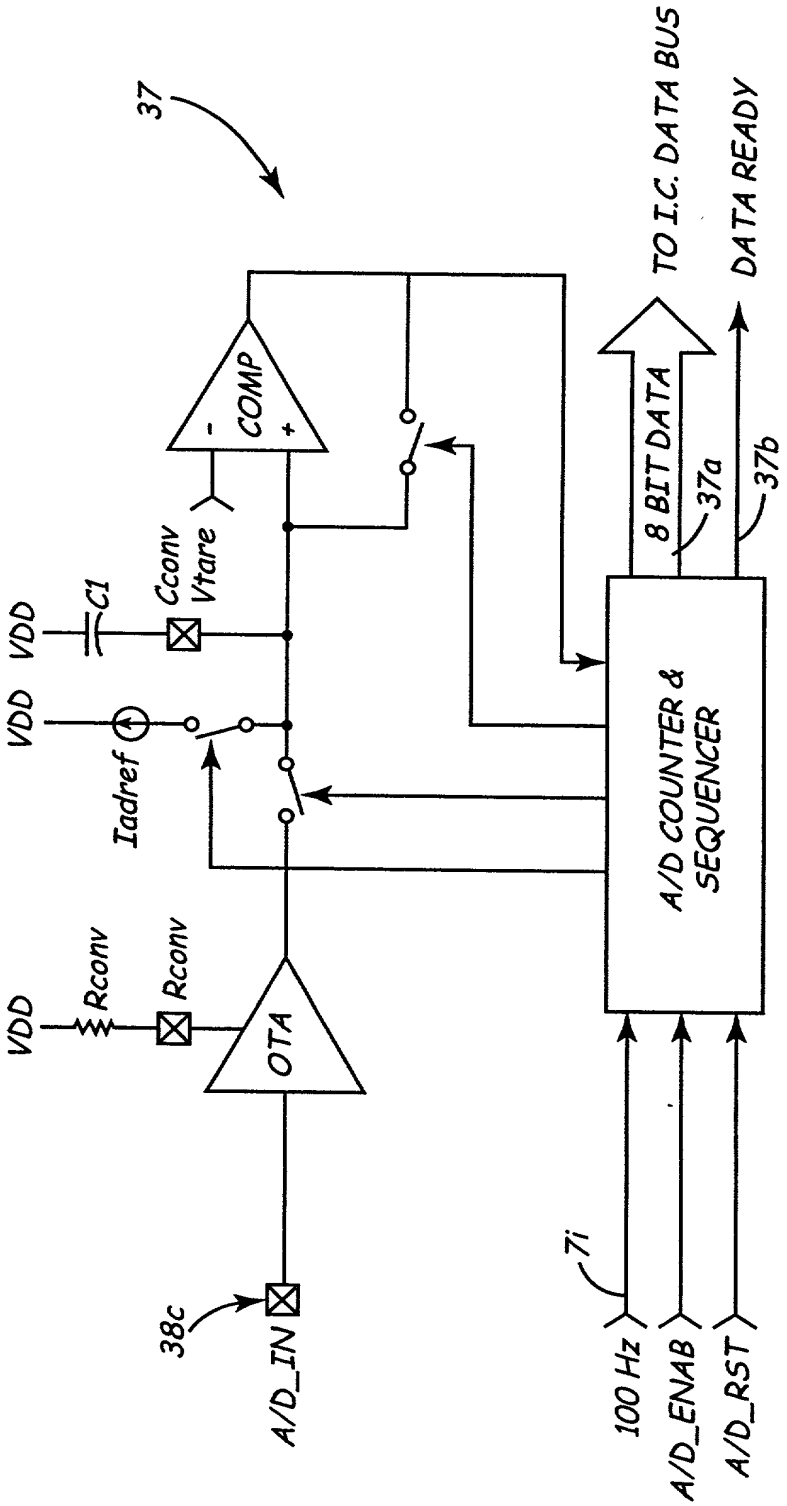
37
COMP
-
+
Cconv
Vtare
C1
VDD
VDD
Iadref
VDD
Rconv
Rconv
OTA
38c
A/D_IN
A/D COUNTER &
SEQUENCER
8 BIT DATA
37a
37b
TO I.C. DATA BUS
DATA READY
7i
100 Hz
A/D_ENAB
A/D_RST

FIG. 3A

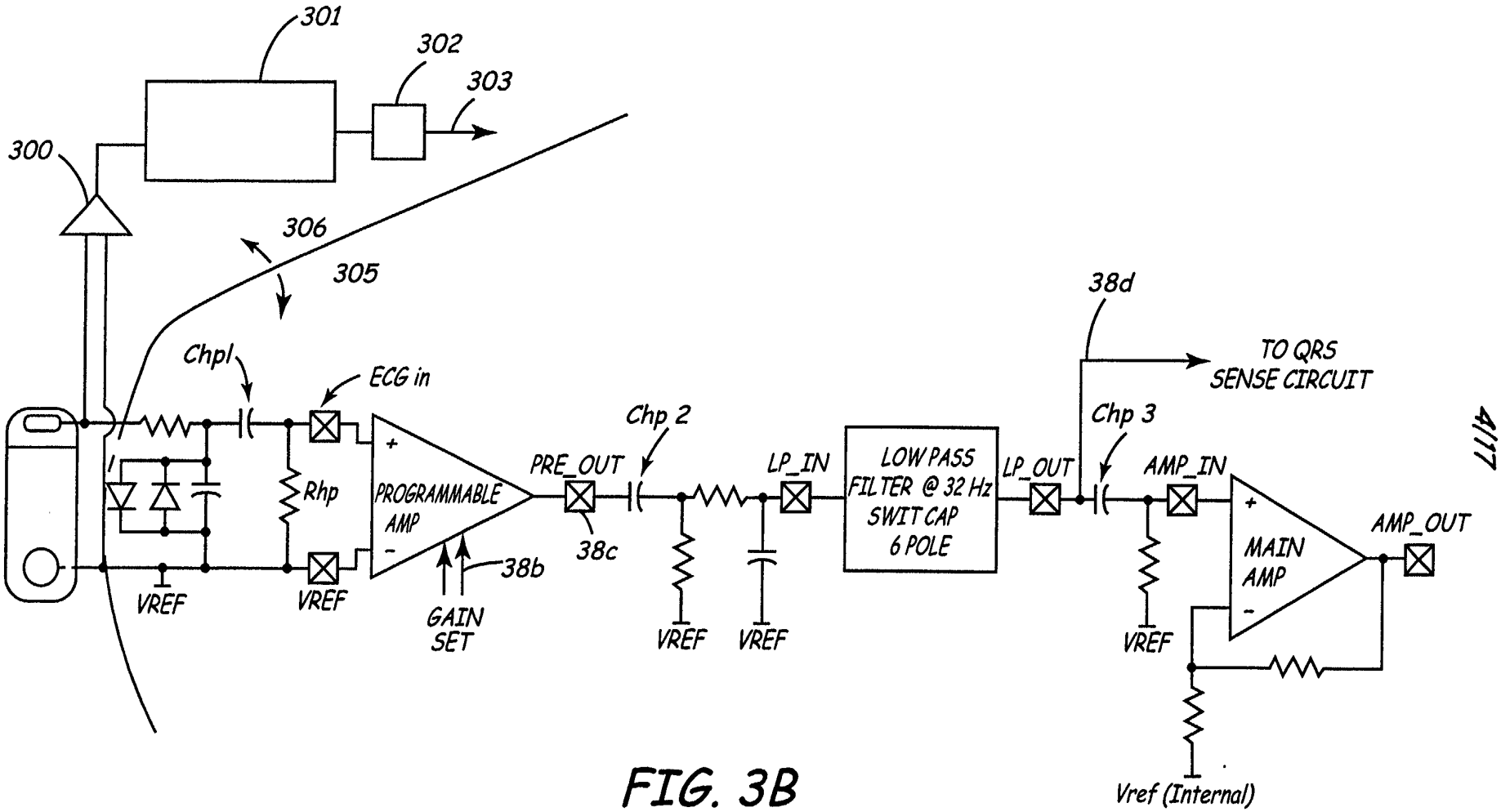
301
302
303
300
306
305
Chpl
ECG in
38d
TO QRS
SENSE CIRCUIT
Chp 2
Chp 3
Rhp
PROGRAMMABLE
AMP
PRE_OUT
LP_IN
LOW PASS
FILTER @ 32 Hz
SWIT CAP
6 POLE
LP_OUT
AMP_IN
AMP_OUT
MAIN
AMP
VREF
VREF
VREF
VREF
VREF
GAIN
SET
38b
38c
Vref (Internal)

FIG. 3B

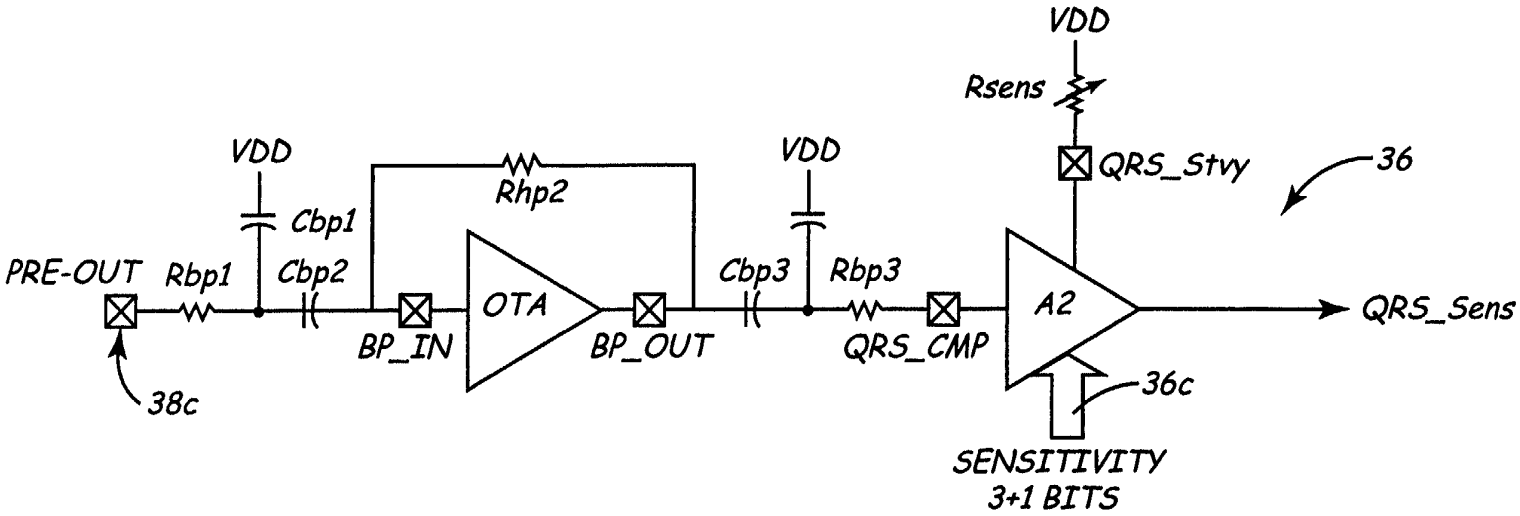
VDD
Rsens
QRS_Stvy
36
VDD
Rhp2
VDD
Cbp1
PRE-OUT
Rbp1
Cbp2
OTA
Cbp3
Rbp3
A2
QRS_Sens
BP_IN
BP_OUT
QRS_CMP
38c
36c
SENSITIVITY
3+1 BITS

FIG. 3C

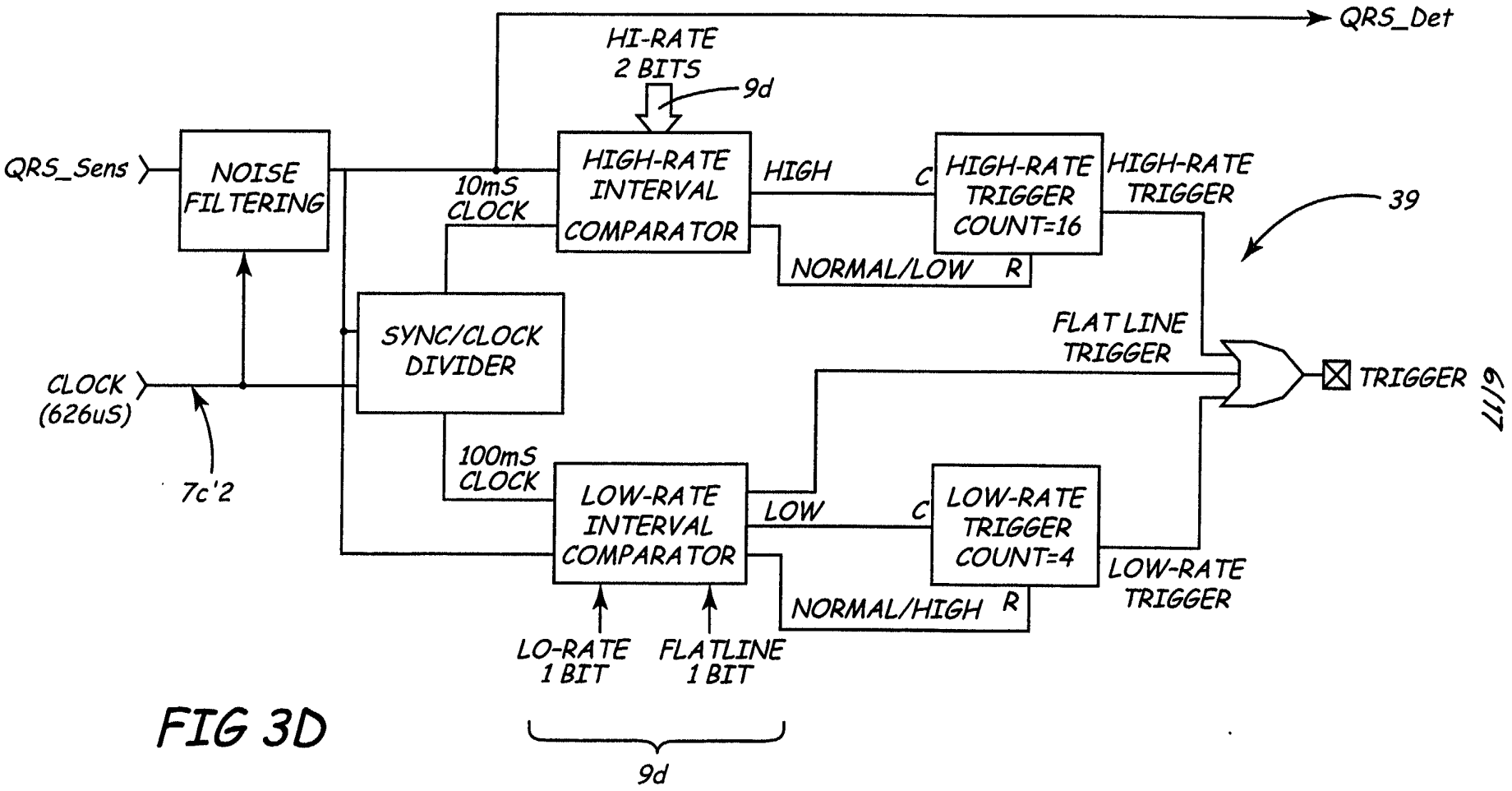
QRS_Det
HI-RATE
2 BITS
9d
QRS_Sens
NOISE
FILTERING
10mS
CLOCK
HIGH-RATE
INTERVAL
COMPARATOR
HIGH
C
HIGH-RATE
TRIGGER
COUNT=16
HIGH-RATE
TRIGGER
39
NORMAL/LOW
R
SYNC/CLOCK
DIVIDER
FLAT LINE
TRIGGER
TRIGGER
CLOCK
(626uS)
7c'2
100mS
CLOCK
LOW-RATE
INTERVAL
COMPARATOR
LOW
C
LOW-RATE
TRIGGER
COUNT=4
LOW-RATE
TRIGGER
NORMAL/HIGH
R
LO-RATE
1 BIT
FLATLINE
1 BIT
9d
6/17

FIG 3D

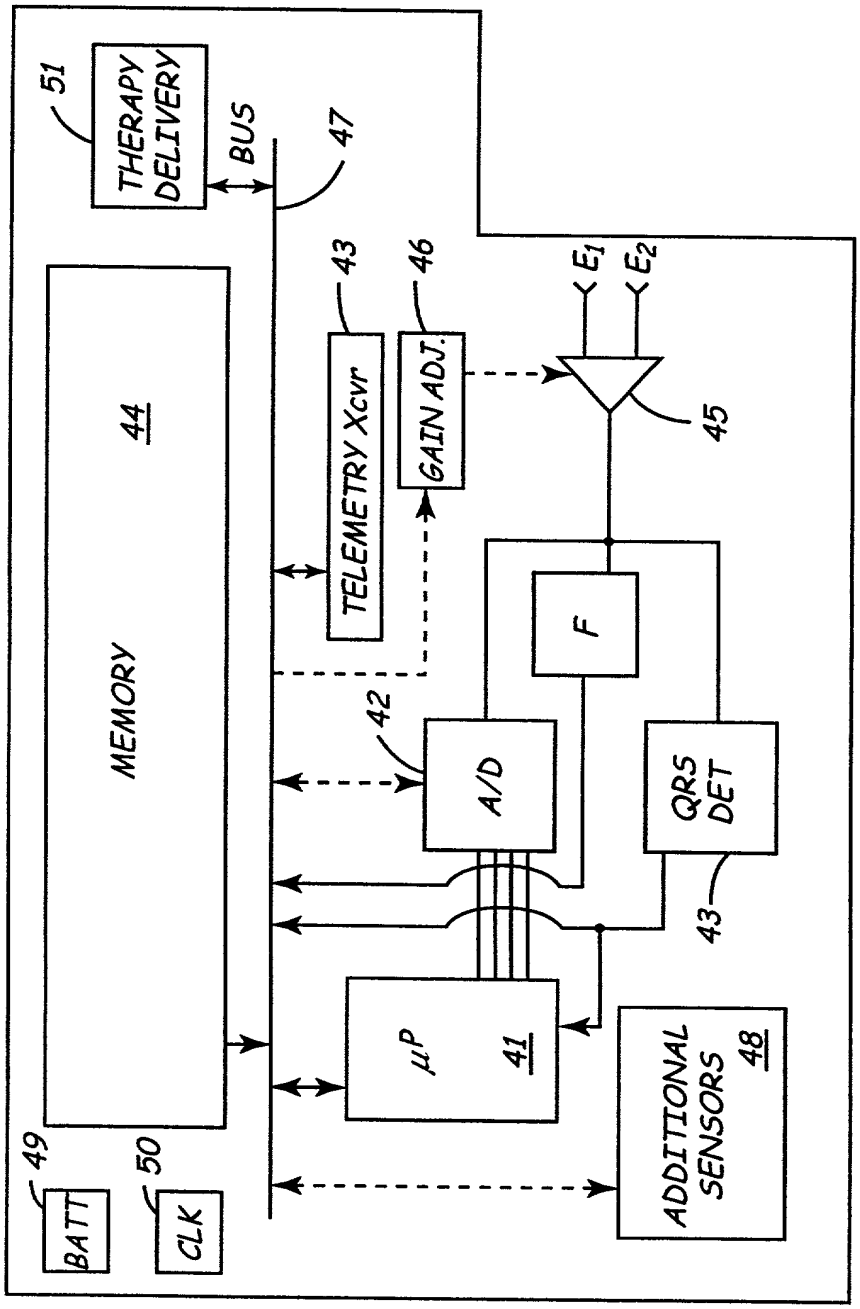
THERAPY DELIVERY
51
BUS
47
MEMORY
44
43
TELEMETRY Xcvr
46
GAIN ADJ.
E_1
E_2
45
F
42
A/D
QRS DET
43
μP
41
ADDITIONAL SENSORS
48
49
BATT
50
CLK
40

FIG. 4

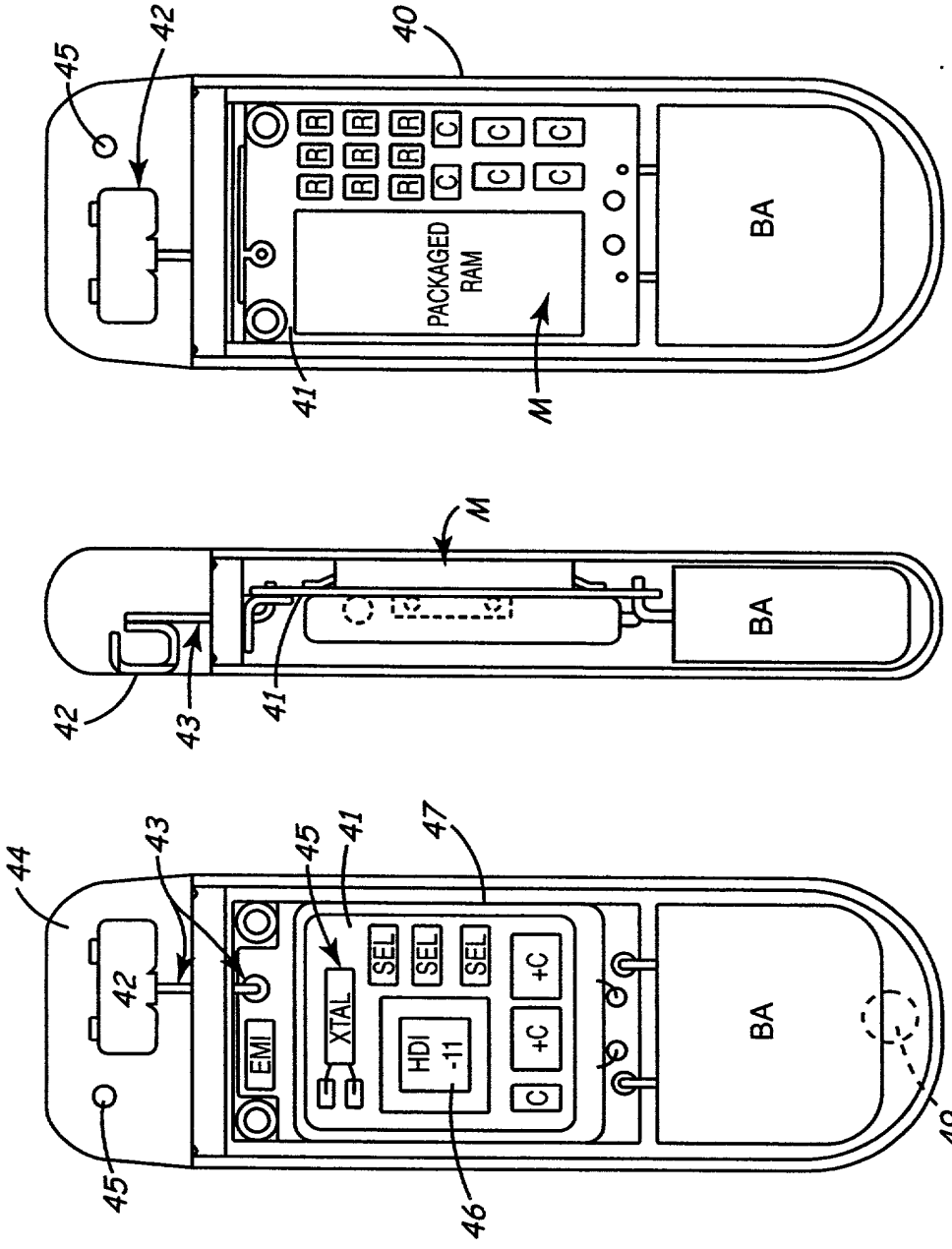

FIG. 4A

FIG. 4B

FIG. 4C

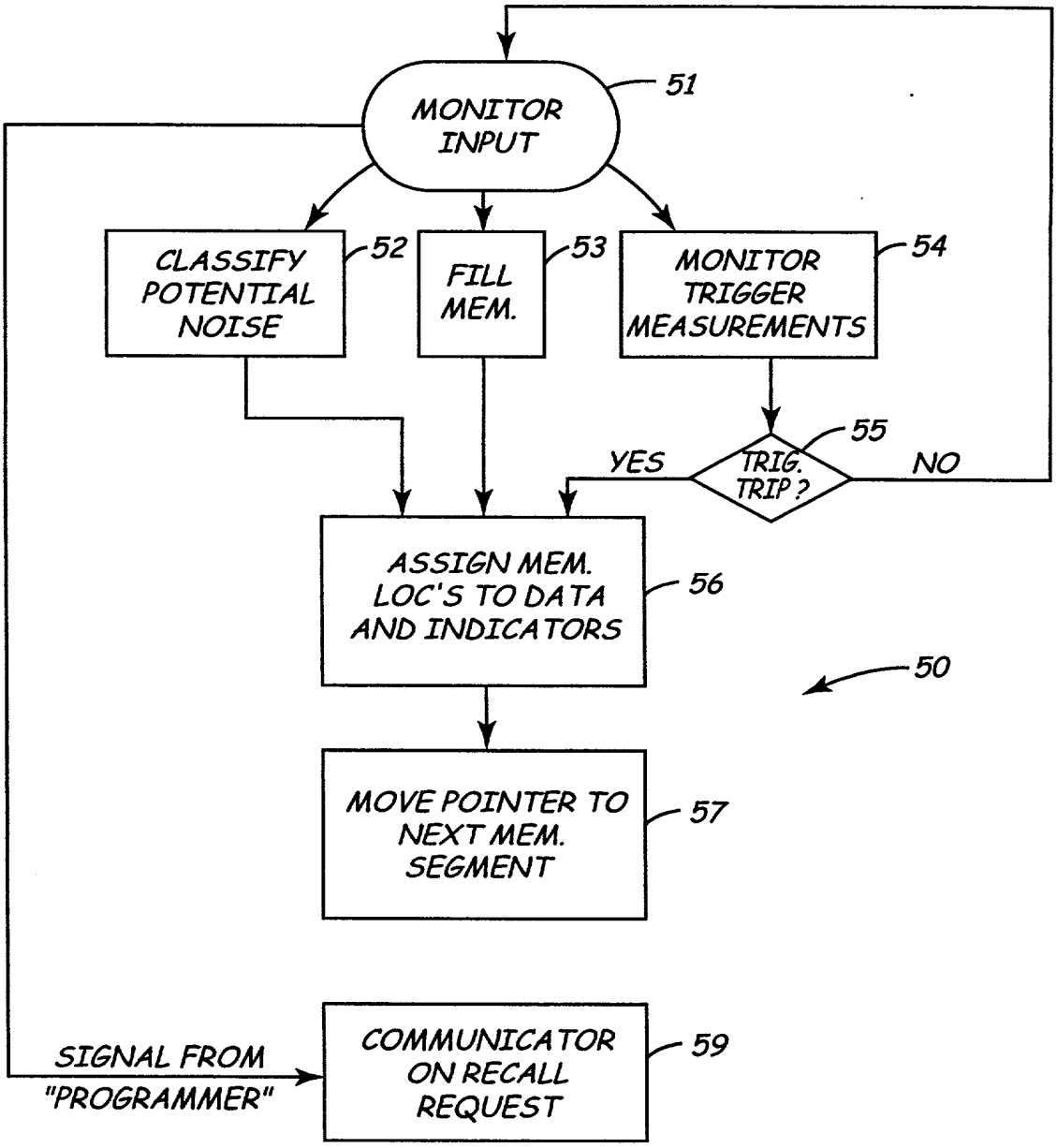
MONITOR INPUT
51
CLASSIFY POTENTIAL NOISE
52
FILL MEM.
53
MONITOR TRIGGER MEASUREMENTS
54
TRIG. TRIP ?
55
YES
NO
ASSIGN MEM. LOC'S TO DATA AND INDICATORS
56
50
MOVE POINTER TO NEXT MEM. SEGMENT
57
SIGNAL FROM "PROGRAMMER"
COMMUNICATOR ON RECALL REQUEST
59

FIG. 5

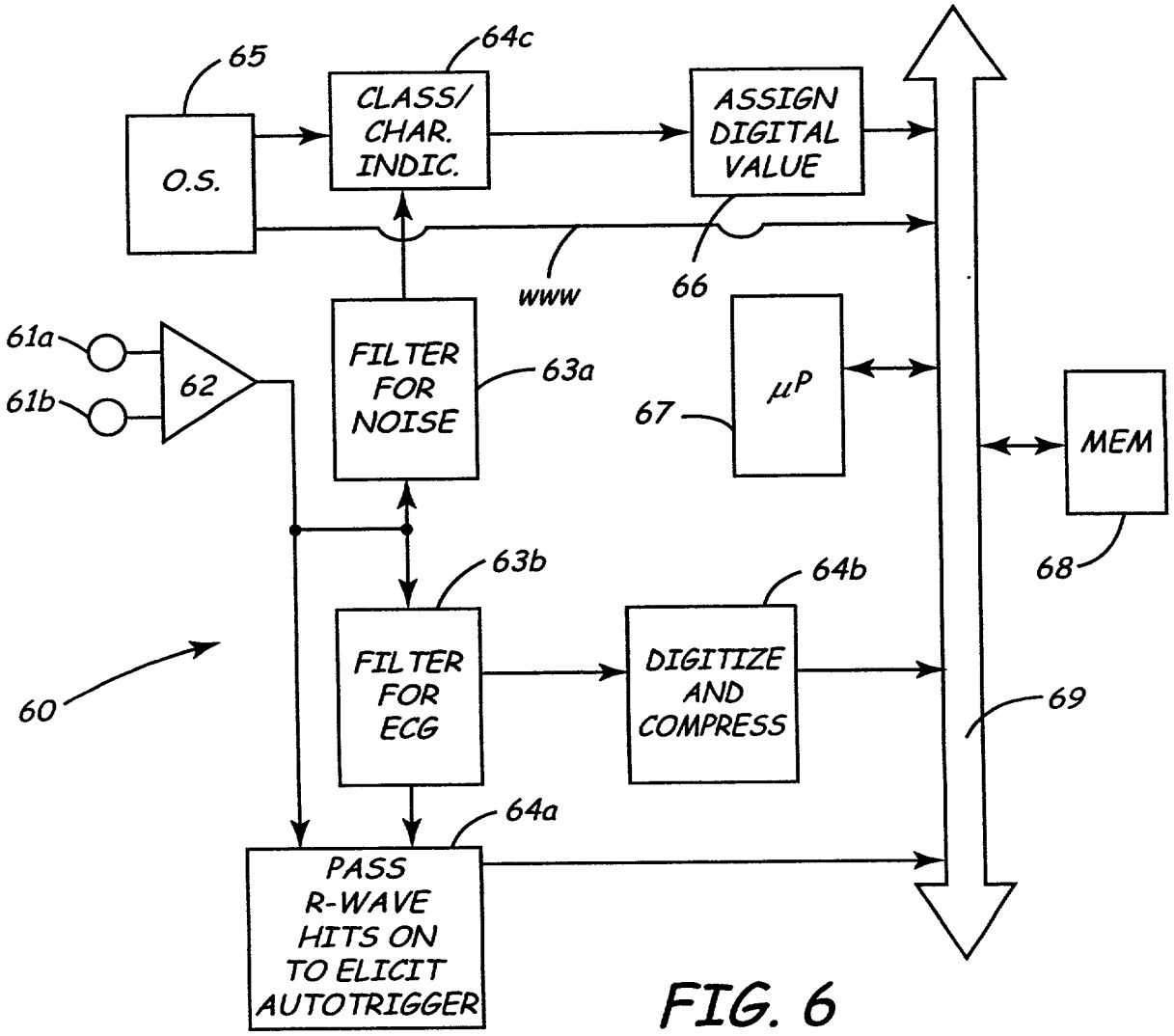
65
64c
O.S.
CLASS/ CHAR. INDIC.
ASSIGN DIGITAL VALUE
www
66
61a
61b
62
FILTER FOR NOISE
63a
μP
67
MEM
68
63b
64b
60
FILTER FOR ECG
DIGITIZE AND COMPRESS
69
64a
PASS R-WAVE HITS ON TO ELICIT AUTOTRIGGER

FIG. 6

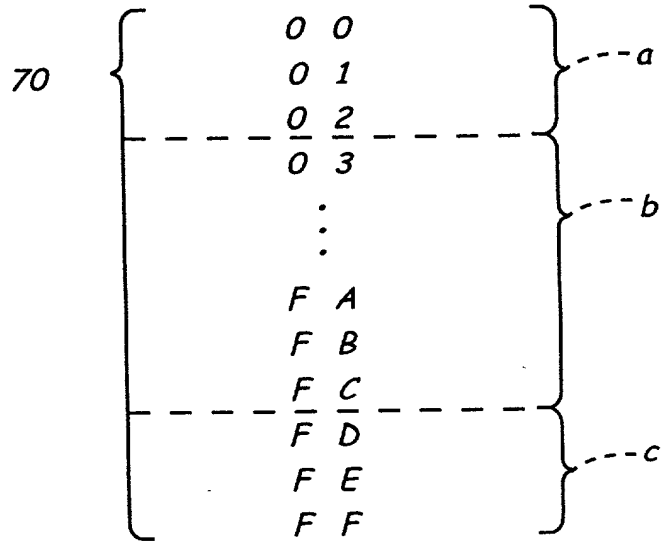
70
0 0
0 1
0 2
0 3
F A
F B
F C
F D
F E
F F
a
b
c

FIG. 7

REVEAL PLUS MODEL 9526

08:45 06/01/1999
PROGRAMMER 9790 9809E01
(C) MEDTRONIC, INC. 1999

SUMMARY GRAPH

PAGE 1 OF 1

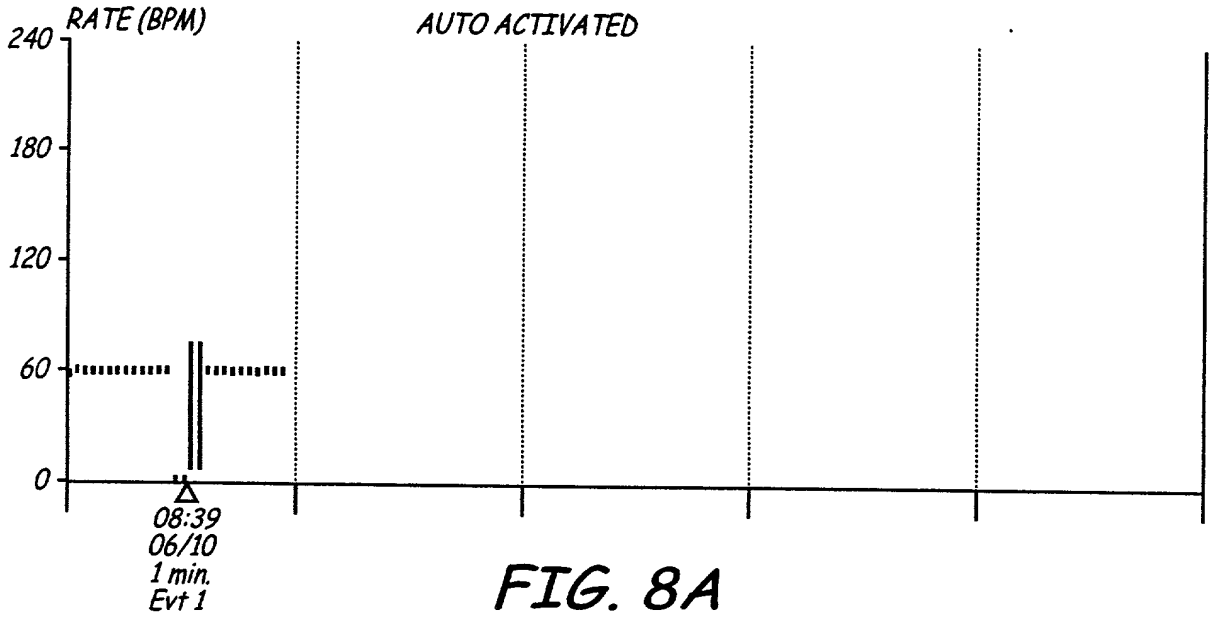

FIG. 8A

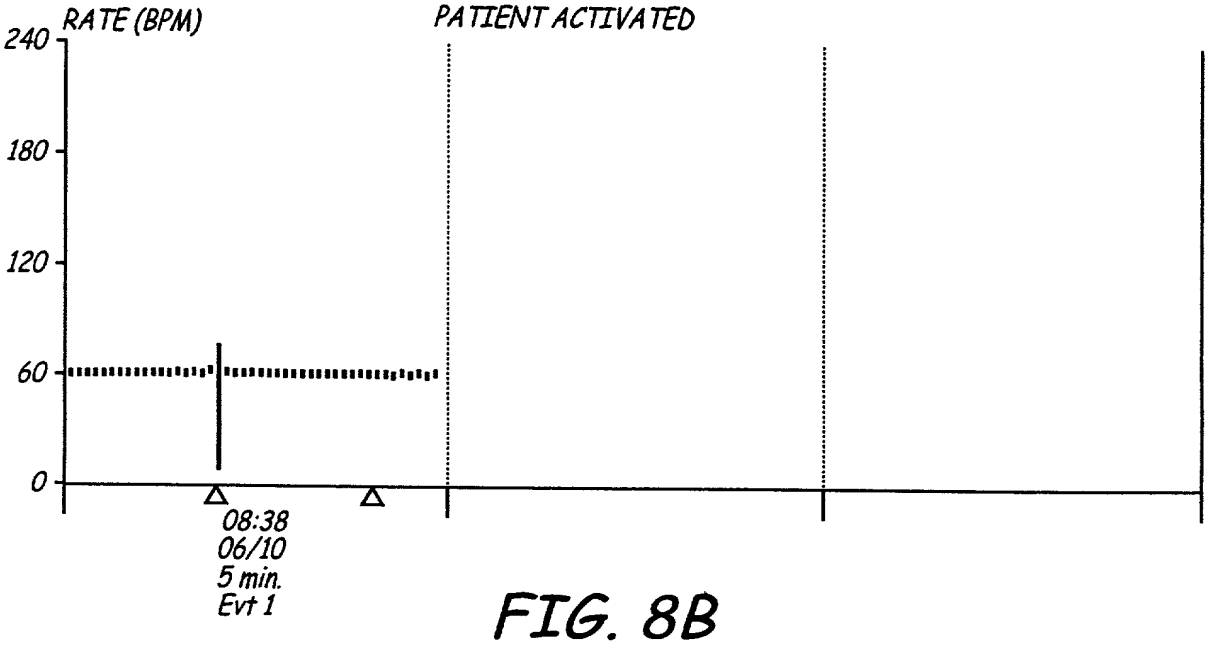

FIG. 8B

Δ=ACTIVATION POINT

09/574,621 - 10/10/02

REVEAL PLUS MODEL 9526
GAIN: x2 (+/-0.8 mV)
STORAGE MODE: 3 PATIENT, 5 AUTO EVENTS, 21 MIN.
PATIENT EVENT 1 OF 1 RECORDED 06/10/1999
12.5 mm/sec, 18.1 mm/mV

08:45 06/01/1999
PROGRAMMER 9790 9809E01
(C) MEDTRONIC, INC. 1999
PAGE 2 OF 3
Δ=ACTIVATION POINT

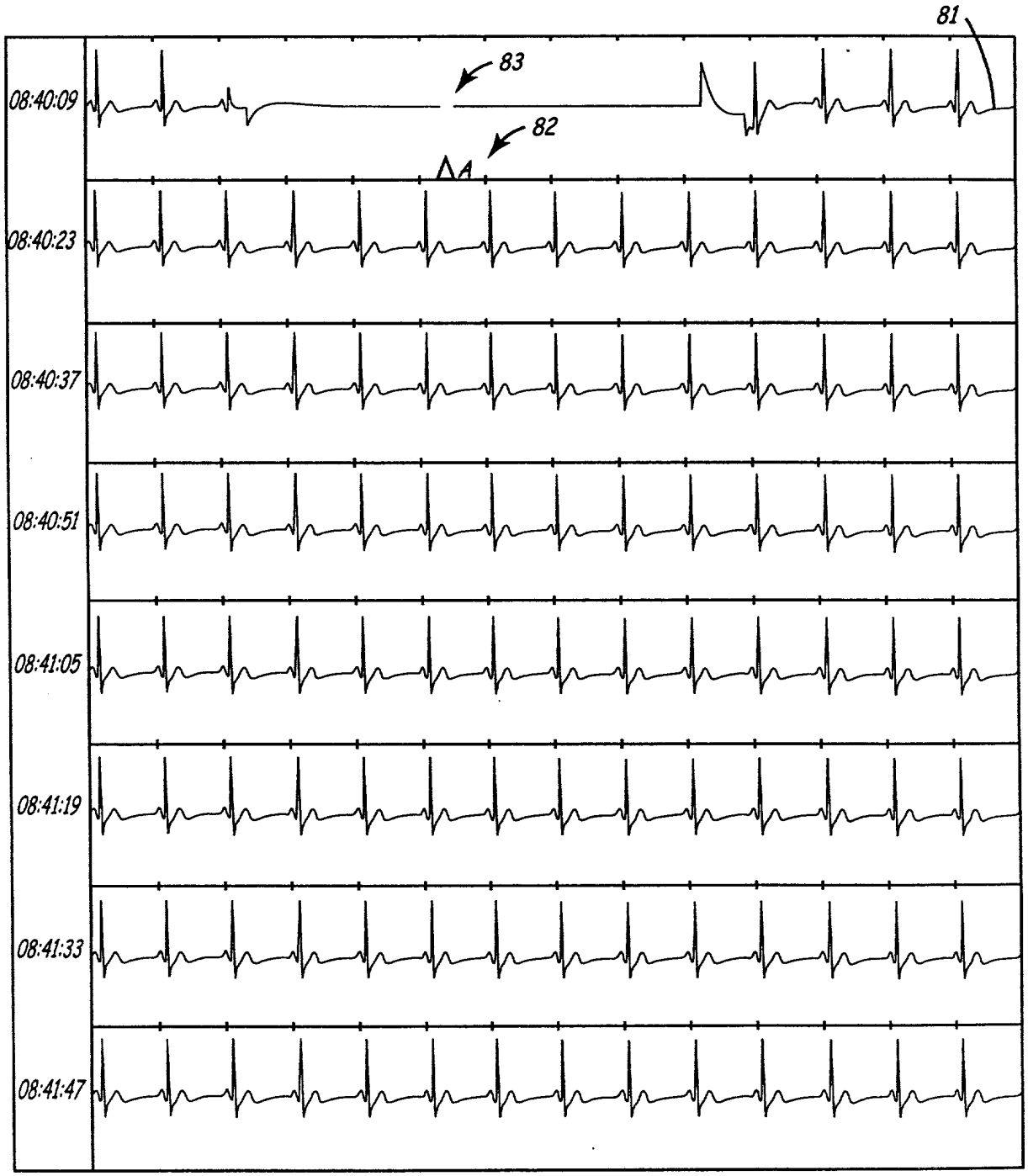

FIG. 9A

Patent - 6,526,315 B1

REVEAL PLUS MODEL 9526
GAIN: x2 (+/-0.8 mV)
STORAGE MODE: 3 PATIENT, 5 AUTO EVENTS, 21 MIN.
PATIENT EVENT 1 OF 1 RECORDED 06/10/1999
12.5 mm/sec, 18.1 mm/mV

08:45 06/01/1999
PROGRAMMER 9790 9809E01
(C) MEDTRONIC, INC. 1999
PAGE 3 OF 3
Δ=ACTIVATION POINT

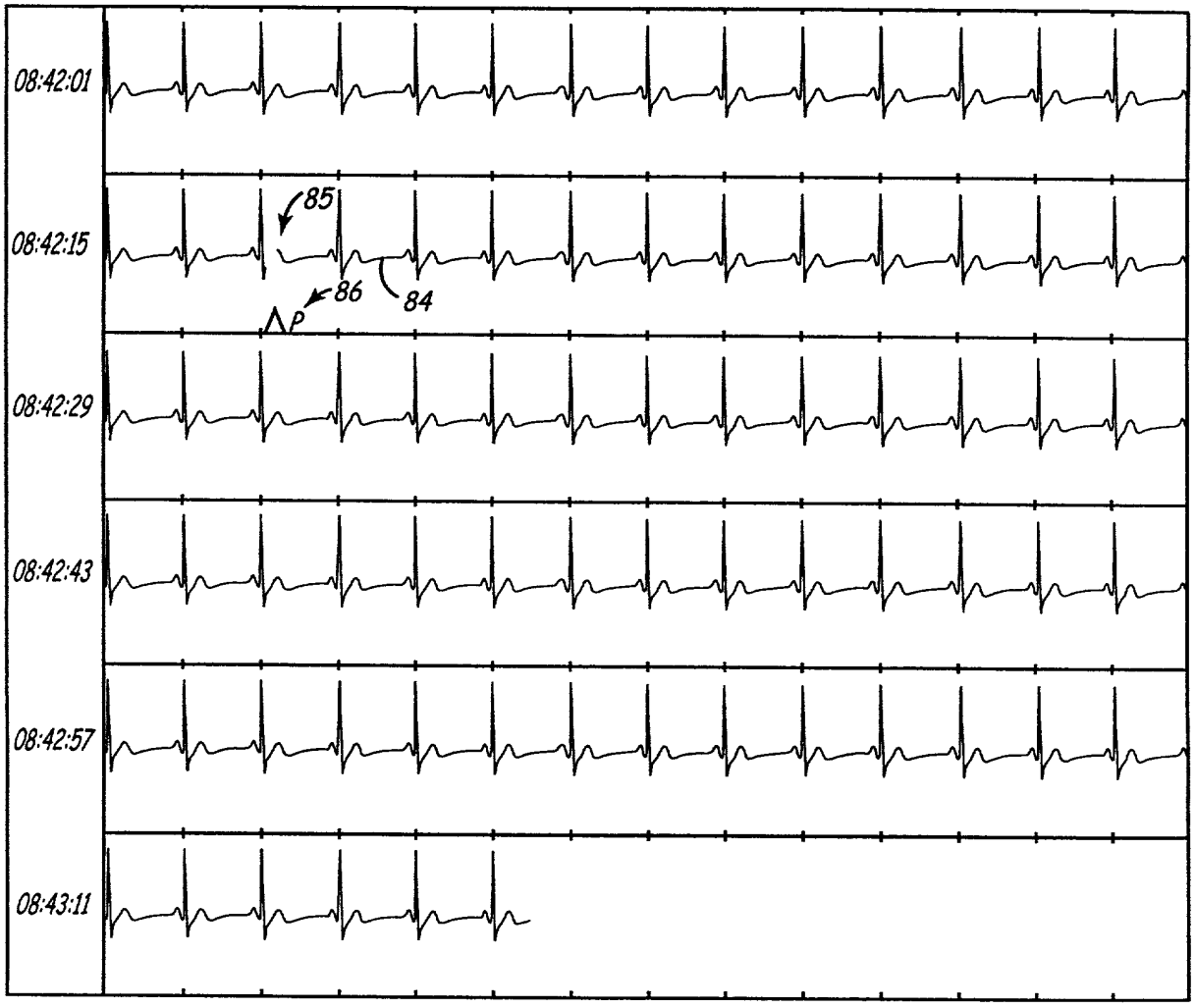

FIG. 9B

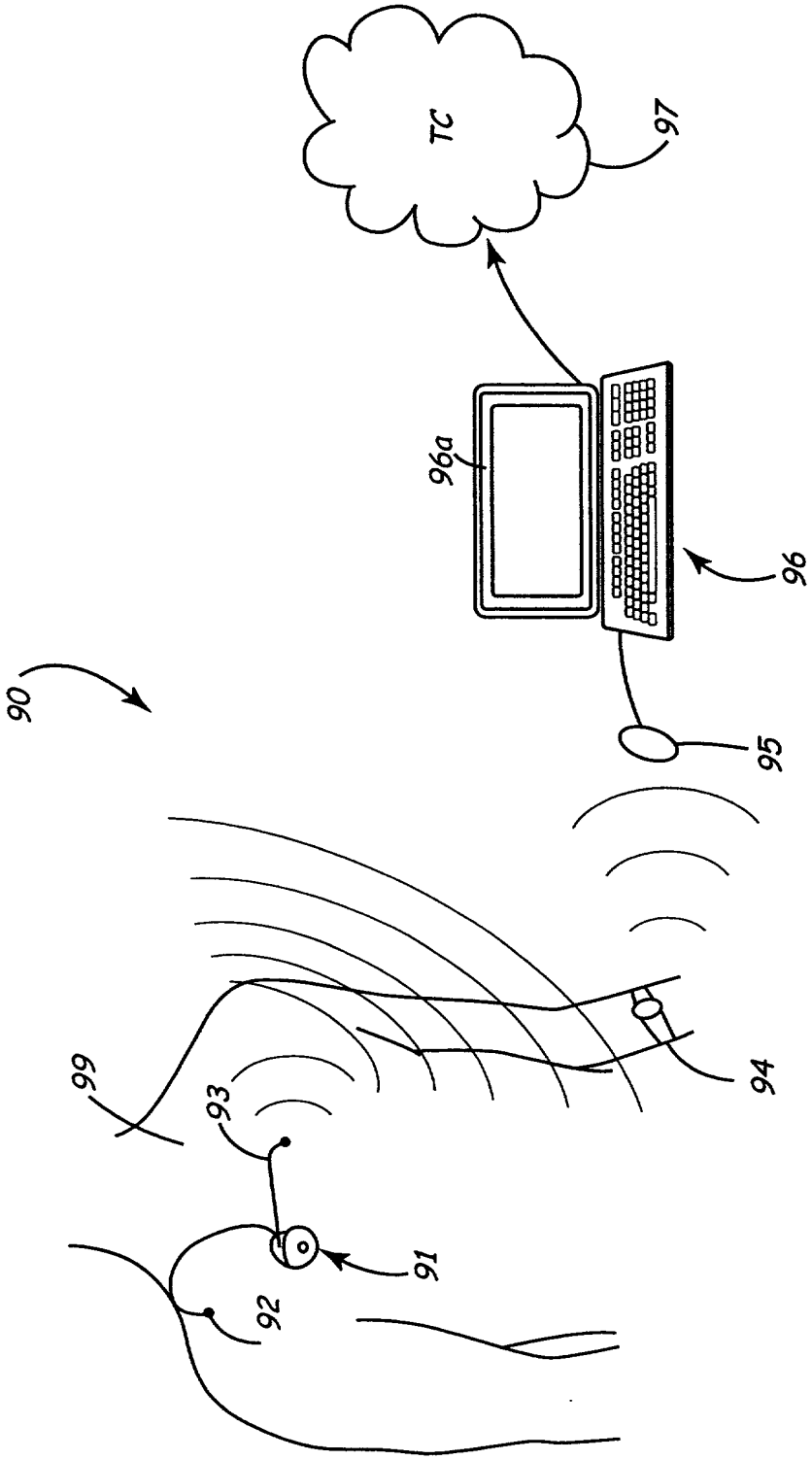

FIG. 10

FOOTOT-T25/060

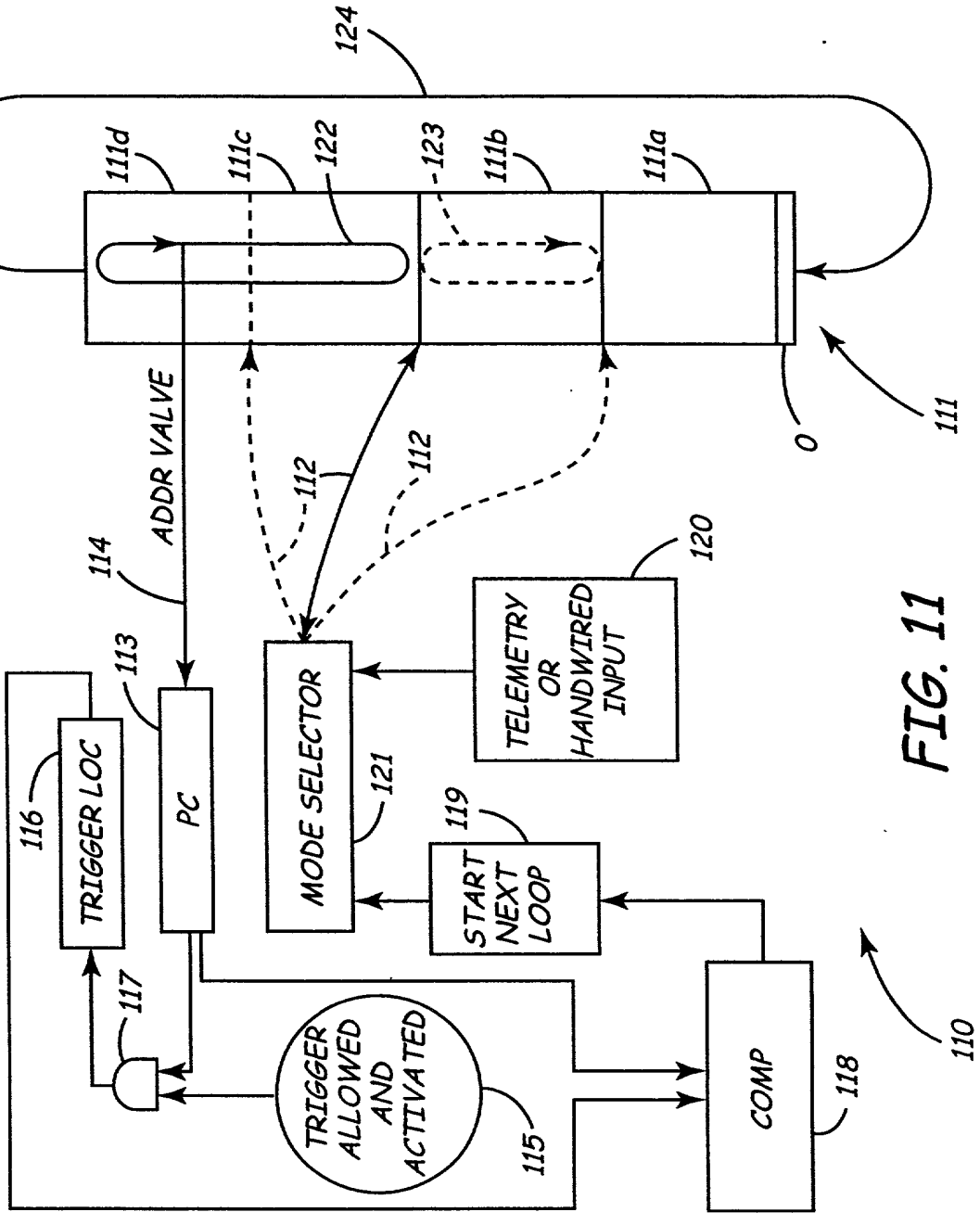
124
111d
111c
122
123
111b
111a
ADDR VALVE
114
112
112
0
111
113
TRIGGER LOC
116
PC
MODE SELECTOR
121
TELEMETRY OR HANDWIRED INPUT
120
119
START NEXT LOOP
117
TRIGGER ALLOWED AND ACTIVATED
115
COMP
118
110

FIG. 11

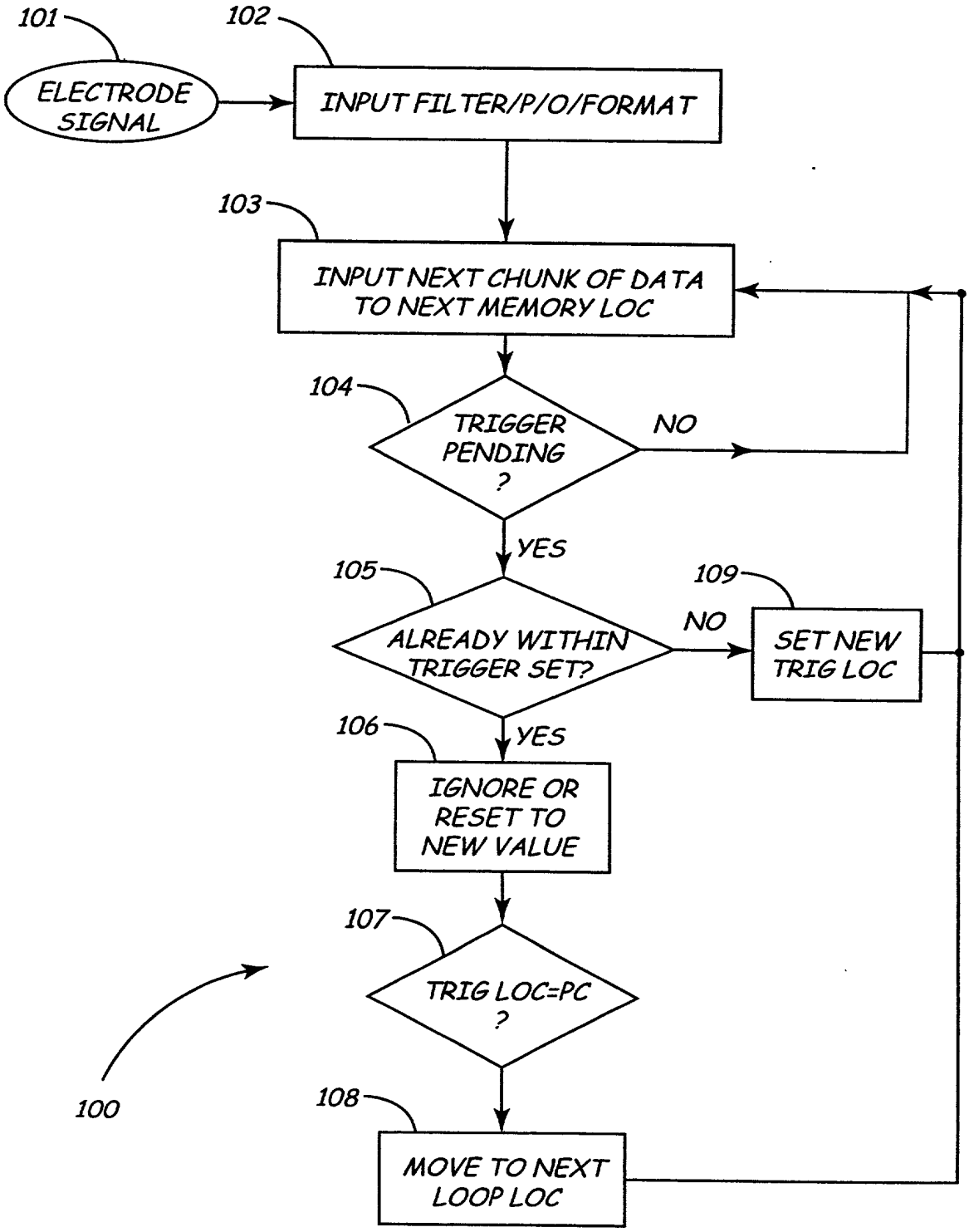

FIG. 12

Docket - 10052-1

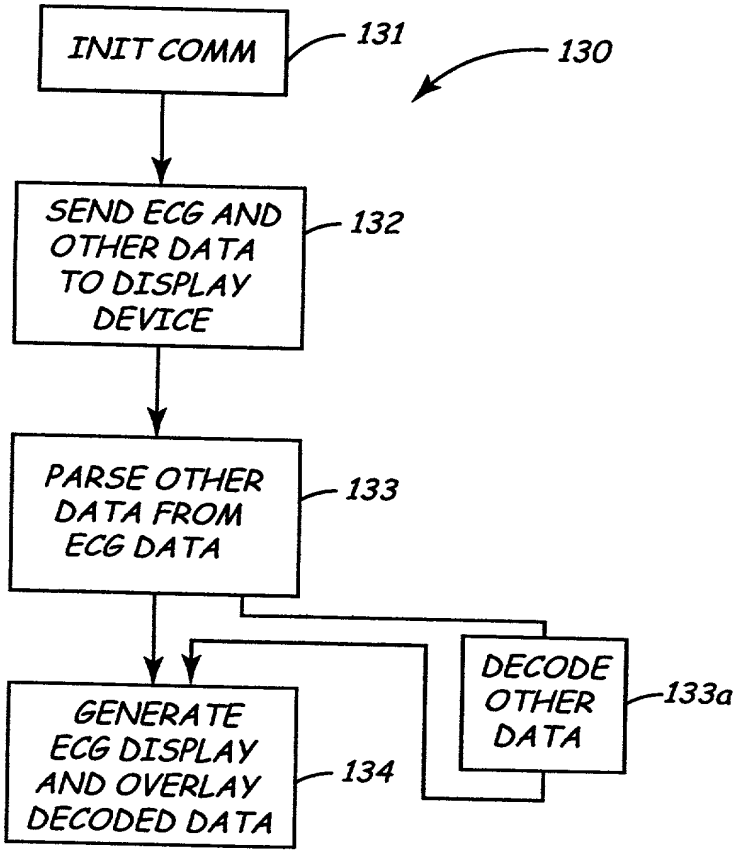
INIT COMM
131
130
SEND ECG AND OTHER DATA TO DISPLAY DEVICE
132
PARSE OTHER DATA FROM ECG DATA
133
DECODE OTHER DATA
133a
GENERATE ECG DISPLAY AND OVERLAY DECODED DATA
134

FIG. 13